MURAKAMI SCREEN USA

Technical Newsletter - February 2012

MURAKAMI SCREEN U.S.A., INC. *745 Monterey Pass Rd. Monterey Park, CA 91754 Tel 323.980.0662*

Automatic Textile Presses
The Hidden Costs

Automatic textile presses require more company resources than meets the eye. Too often owners look past the cost of the press payments and focus only on the ***potential*** profits of increased production capacity. When profit margins are analysed downline it is shocking how slim margins can be, especially with market pricing so low for volume printing. Lets look at some 'blind spots' that owners never see, but workers struggle with on a daily basis. Some questions first:

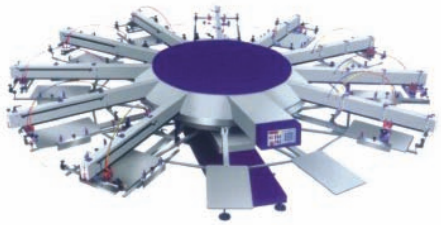
1. Do you own your automatic press or lease it? If you lease your equipment the payment is made before you can begin to pay for anything else. If you own your equipment, production print prices can be more competitive or you can absorb the costs of doing business a little better than someone struggling with a lease payment.

2. How many people does it take to keep an automatic press running all day? It is far more than 3 people as we will see shortly. Operating the press non-stop requires support departments to be in tune with the automatic press production cycle.

3. How large is your shop? Is it large enough to 'feed' your automatics? Automatic presses eat orders quickly, as in pallets of shirts per day. We'll look at material handling needs to support your autos in a minute.

4. How strong is your plant management? Owning a press is just the beginning. Maintaining the production environment can spell successs or disaster depending on how well you support your equipment.

5. What are the blind spots costing you money on an automatic press while it is printing? Your screens play an even greater role in keeping your press working. While companies buy top of the line presses they often overlook this point when making screens for it.



First lets look at leasing vs ownership of automatic equipment. If you are capable of running two to three shifts per day at your plant the lease cost is minor and the payment only affects a small percentage of your bottom line. However if you run a single shift or you print for part of the day due to lack of work, your lease payment can be quite costly to your bottom line. If you do only contract work and run one shift you need low cost building payments or low labor costs.

2. How many people does it take to keep an automatic press running all day? When you see that gleaming print monster at the trade show all you hear is how many pieces per hour it will print, how good the registration is and about all the money you can make. Sounds good until you unpack it, set it up, and get your first job printing. If it is your first automatic it will stand still more often than not as you rush to get screens ready, inks mixed, and register your first job (only to find out the print sequence didn't work and do it all over again!).

Then to run a job at full production speed you'll need workers to load the shirts and unload them, as well as a catcher at the end of the oven to lay them flat to prevent wrinkles. Little thought is given to the next job on press that needs screens shot and prepped by a screen room worker, another to mix inks, another to pull shirts, workers to fold and bag if needed, shipping personnel to get it out of the warehouse on time and receive new orders, and bookeepers and office personnel to keep track of billings and payroll. Not to mention art personnel to design and separate the art, as well as a coordinator to marry art and samples to document all details of a print run so it can be reprinted well. Lacking in any of the areas above can create downtime on press.

If you are new to the automatic press production world then the hard lesson is: ***You need to keep the presses running non-stop, all day, everyday to pay for this workforce before the company makes any money.***

MURAKAMI SCREEN U.S.A., INC. *745 Monterey Pass Rd. Monterey Park, CA 91754 Tel 323.980.0662*

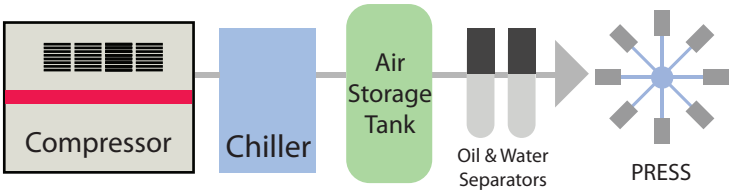
3. How big is your shop? In this case I am referring to floor space, not income. As mentioned earlier automatic presses print shirts very quickly. An automatic with good screens, precise registration and the right personnel can print 3200-4000 pieces per 8 hour shift on the newer servo driven presses. A shipping pallet can hold 600 pcs if shirts are laid out flat in two alternating 300 pc stacks, or 1200 to 1800 if laid out in dozen folds and wrapped in pallet wrap. It is possible to feed an automatic 3 pallets a day or more when running double shift.

Too often an automatic press is squeezed into an existing shop without planning for the material handling needs of the company. If you want to maximize throughput, the shirts need to flow effortlessly through the shop. An automatic press needs at least two to three times the floor space of the oven and press combined to allow pulling and staging of orders to take place days ahead of production. (See shop layout drawing on the next page.) Staging shirts on pallets is the easiest material handling possible in an automatic press shop. Pallet Jacks, Scissor Pallet Jacks, and Fork Lifts can move orders far more efficiently than moving cases of shirts with a hand cart.

4. How good is your understanding of Plant Management? Most screen printers waiting for their new automatic press are in a state of euphoria over the new production capacity, the potential for better printing and probably for hands that won't be sore from printing all day. Suddenly however you need to know much more about electric distribution for flash cure units that need 240 volts, or whatever your strongest voltage is in your country. Electrical distribution is costly when done to code, but even more costly when your extension cords overheat and start a fire. Plant power distribution needs to be done before the press arrives. The press needs power but more imortantly lines need to be dropped from the ceiling for the flash cures that need high voltage and high amperage loads fed through adequate weight wiring. Flash cures draw a lot of power and need good wiring to avoid melting the connection plugs. Always keep spare plugs on hand for the flash units as connecting plugs tend to go bad over long periods of use.

Air compressors, how much horsepower? What kind of chillers? Water and oil separators? What kind of pipe, copper or black pipe? What about air storage tanks? And of course how to maintain all of this equipment.

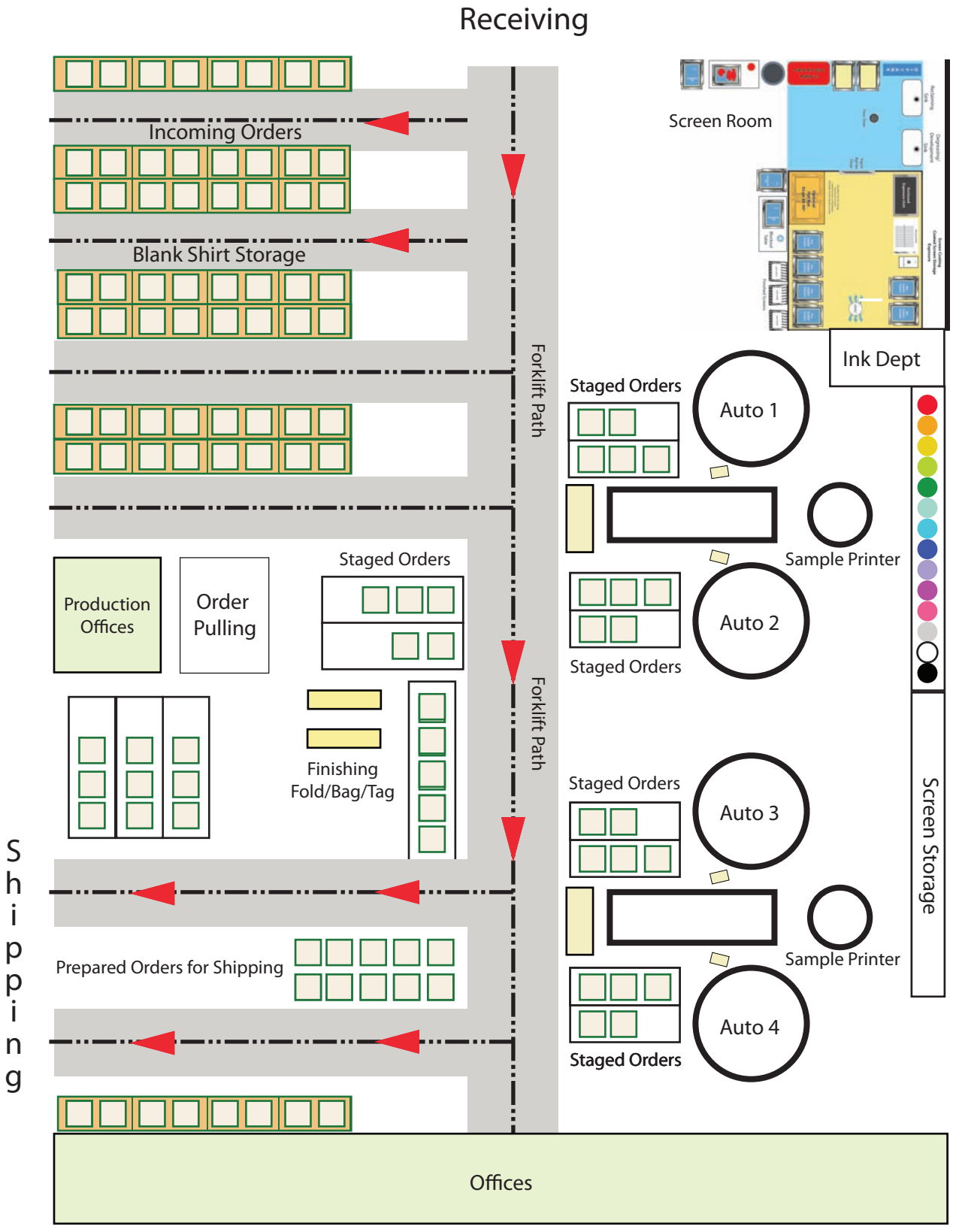
If you decide to forego contacting a good air compressor company and plumber to pipe your shop also know you will eventually fill your expensive press with water and rust it from the inside out. When you discover your press is leaking water from air tubes and cylinders it will never work the same again. It is also worth every penny to get a quiet air compressor with excess horsepower for growth or for those hot days when it will need to work harder and possibly overheat. A quiet air compressor goes a long way to improve the working environment. Nothing like a jet turbine sound in your ears all day to drive you and your employees nuts!



Plant managment also involves traffic flow. While your auto press often reaches a maximum output with the right personnel, the flow of product to and from the press is a case study in plant layout and material handling. Gridlock can happen if both receiving and shipping occur in the same area with only one or two shipping docks available or when a finishing aisle path crosses with the screen and ink department path to the presses. Production should be linear where possible, in one side of the building and out another. Ink and Screen Rooms should be away from both of these areas and feed one side of the press while pallets of shirts enter from the other side. (See shop layout diagram on the next page.) Excess pallet racking space can serve as a shock absorber for orders waiting to be printed or for finished orders to keep floor space clear while providing security for product to keep counts intact. This allows the shipping department enough room to stage orders for shipping rather than running out of space due to finished production clogging the area. Automatic press change over to the next job should be viewed like a car race where pit crews work in unison to get the next job printing as quickly as possible since the automatic press is the one piece of equipment that signs the checks for everyone.

MURAKAMI SCREEN U.S.A., INC. *745 Monterey Pass Rd. Monterey Park, CA 91754 Tel 323.980.0662*

Shop Layout Suggestion



MURAKAMI SCREEN U.S.A., INC. *745 Monterey Pass Rd. Monterey Park, CA 91754 Tel 323.980.0662*

5. What is the biggest blind spot in owning an automatic press? I saved this part for last since it's the screen that matters, more than anything else, it's your screens that will make or break your production yields. Of all the items mentioned screens stop a press more often, for longer periods of time than anything else combined.

Who hasn't taped out a pinhole or lost a screen to a discharge print, or for that matter a whole set to a discharge print? Or needed to go back and shoot a new screen to keep the registration as precise as print one? We've all been there. Here are the key areas to fix, and over the long term the difference in price amounts to less than a sliver of a penny per print.

Mesh: Loss of tension is common with inexpensive mesh while Murakami's Smartmesh maintains register and retains tension levels better; part of the recipe for non-stop production. The higher the retained tension the less labor needed for a new screen to be shot or to fuss with registration on press to see if it can be tweaked back into register. Companies accept down-time; workers and management get used to the stop, start, stop, start of their shop while billable units are lost. Five minutes can equal 25 unprinted shirts at only 300 pcs per hour, and a whopping 66 pieces if your machine is a servo drive running full speed at 800 pcs per hour. At the end of a year these precious prints you lost due to poor performing mesh and emulsion amounts to a staggering percentage of your year end profits you could have kept for income or retained earnings. The cost of quality Murakami mesh and emulsion products is inconsequential and is more than offset by improved production yields and competitive print quality.

So along with a mesh that retains high tension; how well does your mesh print to be competitive? Waterbase, discharge and base plates for plastisol print better through 'S' mesh. S is an abbreviation for thin threads while 'T' thread is the common thickness of mesh thread, and HD is a thicker version of the thread. FYI: Each mesh count may come in a variety of thread diameters that internationally use the micron thickness of the thread diameter. So a 150/S mesh can also be called: 150/48.

Here are some descriptions of various shops and my recommendations on the type of mesh you can use:

1. If you ***handle screens carefully*** and you want the brightest, softest plastisol printing you have ever felt, the brighest most detailed discharge, and the finest tonal waterbases, go with S thread for base plates, simulated process, or discharge. S threads will push your printing to new levels.

Rolling Screen Racks are the safest way to transport screens in a shop.

2. If your shop personnel bang screens around in handling, reclaiming, developing or in storage you are better off with thread in the middle of the thread offerings like T-thread or a micron thickness that is in the middle of a mesh count range. Higher quality T-thread with excellent low elongation properties will give you improved long term registration and withstand poor mesh handling techniques. You can move up to the benefits of S mesh by training employees how to handle fine S-mesh screens.

3. If your shop stacks screens filled with inks and leans them against each other or personnel throw them around during reclaiming and handle them as if they were indestructible, you should be using T or HD diameter thread and low mesh counts to avoid losing your investment in screens. I have literally seen personnel toss a screen into the sink filled with other screens and complain that their 330-S mesh is popping. Kind of like saying you can throw dishes into the sink for cleaning and none will be chipped or broken.

MURAKAMI SCREEN U.S.A., INC. *745 Monterey Pass Rd. Monterey Park, CA 91754 Tel 323.980.0662*

Emulsion: Viewing emulsion as a commodity and choosing the least expensive one available is like going to a car dealer and buying the first car you see at the lowest possible price when what you really need is an SUV that can hold your entire family, that is dependable, safe, and a wise investment for years of use. Emulsions are like that. The durability and print quality of your screen is crucial to success. Screen breakdown can be eliminated by choosing an emulsion that performs non-stop on press and exhibits excellent print qualities.

Some emulsion recommendations:

1. The need for speed: Many automatic shops grow beyond their screen room production capabilities. When the busy season starts and production and sampling screens need to be made shortcuts become normal and screens are rushed to press. For sampling this isn't an issue, for production it can spell disaster. Screens that are ***not*** completely dry before exposure and screens that are ***rushed*** to production right after exposure are weaker than ones that are dried properly after coating and exposure. Discharge inks will cause rushed screens to breakdown much sooner on poorly prepared screens, or pinhole on plastisol screens.

Murakami invented fast exposing emulsions that can solve this volume crunch in screen rooms that may not have grown while more automatic and sampling presses were added to a company. Screens still need to be dried properly before and after exposure but the time to expose can be under a minute on a strong 5kw exposure units.

Fast Exposing Emulsions for Textile Printing:

Aquasol HV, Aquasol HVP and Aquasol TS: Are excellent choices for Plastisol, Waterbase and Discharge Printing.

Photocure BLU and Photocure TXR: Expose well on lower wattage exposure units. Excellent for Plastisol and shorter waterbase and discharge print runs.

Scan the QR code to the left to go to Murakami Screen Website.

Tech Support:
Alan Buffington: 323-980-0662 ext 118
Rob Wellen: 323-980-0662 ext 112
Walt Wright: 916-343-0018

Shelf Life: SBQ Pure Photopolymers can also help out smaller shops who may not need exposure speed but just need longer shelf life. SBQ pure photopolymer emulsion without diazo added for water resistancy, can last up to a year while any emulsion with diazo is only good for 4-6 weeks at maximum performance levels.

2. The need for price and performance: Let's face it, our industry has become very cost competitive. If your screen room can produce the screen volume needed for production while using a slower exposing emulsion, then a dual cure or pure diazo emulsion may help you control costs and still provide stencil performance that only Murakami can deliver.

Pure Diazo Emulsion: SP-1400 has a great price point and great performance as well. While it exposes a little slower than pure photopolymers it's press performance is better than the competition. Excellent for plastisol as is, or for waterbase and discharge when hardened with MS Hardener from Murakami.

Dual Cure Emulsion: Photocure PRO is one of our best emulsions for resolving fine details and halftones. Exposure speed is about halfway between pure diazo and pure photopolymer emulsions. Capable of printing stunning simulated process and water base and discharge inks when hardened with MS Hardener.

Photocure PRO Heavy is a higher viscosity emulsion with excellent resolution and yields a thicker emulsion stencil that can be advantageous when printing discharge and the new Virus brand inks that are pthalate and PVC free.

Emulsion: Photocure PRO Heavy

Mesh: 225-S Baseplate
350-S Overprints

Printer: Motion Textiles
Sacramento Calif.

Art: Murakami Screen

Seps: Motion Textiles